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ABSTRACT

In an effort to determine the effectiveness of Lakeshore Technical Institute's (LTI's) Developmental/Remedial Reading Program, a comparative analysis was made of the grade point averages (GPA's) of 20 students who participated in the program and 24 students identified as having reading skills deficiences who did not participate in the program. First-semester GPA's for both groups were submitted to the independent t-test, using a .05 level of significance. The range of GPA's for the two groups of students was identical, with GPA's from 0.0 to 4.0 represented in both groups. The grade distribution was also similar for both groups (i.e., 9 program participants and 11 non-participants obtained a GPA of 3.0 or above, while 6 participants and 7 non-participants had a GPA of 0.0). Based on study findings, it was recommended that: (1) enrollment in the program be voluntary; (2) program content and procedures be re-evaluated; (3) specific program reading skills levels be determined; (4) non-GPA factors be used for program evaluation; (5) non-GPA factors be used in selection of the target population; and (6) longitudinal outcomes of the program be studied. (PAA)

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EFFECT OF DEVELOPMENTAL/REMEDIAL READING PROGRAM PARTICIPATION ON THE GRADE POINT AVERAGE OF STUDENTS WITH READING SKILLS DEFICIENCIES AT LAKESHORE TECHNICAL INSTITUTE

By

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Lakeshore Technical Institute

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A PRACTICUM PRESENTED TO NOVA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

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ABSTRACT

AUTHOR: Schrader, Marvin A., Ed.S.

TITLE: Effect of Developmental/Remedial Reading Program Participation on the Grade Point Average of Lakeshore Technical Institute Students With Reading Skills Deficiencies

INSTITUTION: Nova University

NOTE: Practicum Submitted For Applied Research and Development Seminar

The purpose of this study was to obtain data to determine the effectiveness of the Lakeshore Technical Institute (LTI) Developmental/-Remedial Reading Program. The study involved full-time students identified as having reading skills deficiencies. A comparison was made between the mean of the first-semester grade point averages (GPAs) of students participating in the reading program and the mean of the first-semester grade point averages (GPAs) of students not participating in the reading program.

The data were submitted to the independent t-test to determine if there was a significant difference in the means of the two groups of students. A .05 level of significance with a two-tailed test was used.

The null hypothesis, "There is no significant difference between the means of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who participated in the LTI Developmental/Remedial Reading Program and the mean of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who did not participate in the LTI Reading Program," could not be rejected as

a result of the statistical treatment. There was no significant difference between the GPAs of the two groups.

It is recommended that (1) students enroll in the reading program on a voluntary basis, (2) reading program content and procedures be re-evaluated, (3) critical levels of reading skills be determined for each program, (4) factors other than GPA be identified and used in the evaluation of the reading program, (5) additional student characteristics be identified for determining characteristics of students benefiting from a reading program, and (6) the longitudinal effects of reading program participation be studied.

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INTRODUCTION

Vocational, technical, and adult educational districts in Wisconsin were developed to train postsecondary school persons for the world of work. This mission is spelled out in the Wisconsin Statutes (see Appendix A). Many persons who are taking advantage of the training offered are deficient in reading skills needed to complete the occupational programs. In 1971 Cross described the new student being admitted to the college as follows: "new student whose profile is characterized as one who avoids work, reads little, seems passive, needs a great deal of structure and reinforcement, and seems to lack communication skills (Cross:1971:12-13)." In 1980 she also again reiterated conclusions based on her continued research.

> There are groups, who are underpresented in existing institutions. In my own research, I have identified two major groups, New Students and Non Traditional Students. New Students are those of any age on circumstance who, for whatever reason, are underprepared to do college work as it is presently defined. Both groups are present in large numbers in the community colleges now (Cross:1980: 1).

Much of the learning in the postsecondary institutions is transmitted by print. "Reading is the process of gaining meaning from print (Ghan and Mocker:1970:1)." It is, therefore, extremely important that students have reading skills sufficient to enable learning from the printed material to occur. Being able to read is also important to the promotion of a good feeling about oneself. Thompson states, "There is ample evidence that the ability to read helps promote a good self-concept, emotional stability, and mental health (Thompson:1979:70)."

This has led to the need for development of a developmental/remedial reading program at Lakeshore Technical Institute, one of sixteen districts in the Wisconsin Vocational, Technical and Adult Education System (see Appendix B).

A number of reading improvement programs have been developed to assist students in becoming better prepared to satisfactorily participate in postsecondary learning. However, most of them have shown less than satisfactory results for various reasons. "Several problems have been identified in such programs by a number of reading experts (Schiavone: 1973:493)." Schiavone also provides advice for the evaluation of developmental/remedial programs as he states, "Therefore, any programs designed for these students must have an impact on their education and subsequent educational accomplishments (Schiavone:1978:4)." Lakeshore Technical Institute (LTI) implemented its Developmental/Remedial Reading Program during the 1980-81 school year to enable students with deficiencies in reading skills to gain proficiency and thereby be able to complete the chosen occupational program. This new reading program had not been evaluated to determine its effectiveness.

The Developmental/Remedial Reading Program required budgetary considerations after the 1981-82 fiscal year. The decision regarding its prolongation will continue to be based primarily on the extent to which reading skills are improved and subsequent increased understanding and completion rates of occupational programs by students enrolled in the reading program. The extent of the effect of the reading program on improving reading skills and subsequent understanding and completion of chosen occupational programs was the subject of this study.

Statement of the Problem

Students identified as having a deficiency in reading skills have low grade point averages in first-semester courses. There was no available data to indicate the value of the LTI Developmental/Remedial Reading Program in enabling these students to complete their chosen occupational programs.

Purpose

The purpose of this study was to determine the value of the present developmental/remedial reading program in assisting the full-time students having reading skills deficiencies to satisfactorily complete the first semester of their chosen occupational program. The program was designed to provide an opportunity for underprepared Vocational, Technical, and Adult Education (VTAE) students to gain/improve reading skills to the level necessary to complete their chosen occupational program.

Research Question

Is there a significant difference in the first semester grade point averages (GPAs) of those full-time students, identified by counselors as having reading skills deficiencies, who scored within the specified limits on the Stanford Diagnostic Test and participated in the LTI Developmental/Remedial Reading Program, and those full-time students, identified by counselors as having reading skills deficiencies, who scored within the specified limits on the Stanford Diagnostic Test and did not participate in the program?

Research Hypothesis

This study was conducted to determine the effectiveness of the LTI Developmental/Remedial Reading Program in assisting the full-time

student having reading skills deficiencies in meeting the goal of satisfactorily completing the chosen occupational program. The research hypothesis developed for this study was as follows: There is a significant difference in the mean of the grade point averages (GPAs) of full-time students, identified as having reading skills deficiencies, who scored within the specified limits on the Standard Diagnostic Test and participated in the LTI Developmental/Remedial Reading Program and the mean of the grade point averages (GPAs) of those full-time students, identified as having reading skills deficiencies, who scored within the specified limits of the Stanford Diagnostic Test, who did not participate in the program.

BACKGROUND AND SIGNIFICANCE

Lakeshore Technical Institute (LTI) is an institution offering one- and two-year vocational-technical education in the state of Wisconsin. It is a public institution financed with federal, state, and local funds in addition to student tuition payments.

The institution offers one- and two-year vocational and two-year associate degree programs in various occupational fields. These fields include:

1. Agriculture.
2. Business administration.
3. Health.
4. Home economics.
5. Public service.
6. Trade and industry.

These programs are offered on a full-time basis, part-time five-year basis, or both.

Students enrolled in programs are at a postsecondary school level having received a diploma from high school, achieved a GED, or are more than 17 years of age. Because of the "open door" enrollment policy (see Appendix A), there are no restrictions regarding academic characteristics of students who enter a particular occupational program.

Lakeshore Technical Institute has received accreditation from a number of agencies and associations. Foremost of these attesting to the excellence of the educational offerings is the North Central Association of Colleges and Universities. LTI has made numerous attempts to improve the quality of its offerings through compliance with recommendations of the accrediting agencies and associations resulting from their own processes.

The last North Central Association accreditation report (see Appendix C) specifically listed the lack of developmental/remedial programs as one of the items of concern. A recommendation was made that such programs be implemented to provide an opportunity for students to gain preprogram knowledge and skills in order to be successful in their chosen occupational program.

During the 1980-81 school year, LTI implemented its Developmental/Remedial Reading program. Since it was operated as a pilot project with funding from both federal and local funding, a limited number of students from within specified limits of reading skills deficiencies were involved. The instruction and activities were designed for use with students having all scores within the following ranges of reading skills deficiencies:

Comprehension Total	16-73rd Percentile
Vocabulary Total	24-51st Percentile
Decoding Total	23-76th Percentile

The twenty students participating and completing the reading program were identified by guidance counselors during the admissions interview, scored within the above specified limits, and voluntarily elected to participate in the reading program. A number of other students elected to participate but did not complete the program and, therefore, were not included in the study.

A number of students, identified by guidance counselors as having reading skills deficiencies, did not score within the specified limits on the Stanford Diagnostic Test. Those students scoring below the lower limits on one or more of the reading skills were referred to the Goal Oriented Adult Learning (GOAL) program for assistance. The students scoring above the upper limits on one or more of the reading skills were denied enrollment in the reading program and were informed that the reading program was not designed to help them improve their reading skills deficiencies.

REVIEW OF RELATED LITERATURE

Although considerable research has been carried out in the field of reading, most of it has been directed at the early years. The research in the teaching of reading to adults is relatively new; and therefore, limited literature is available. This is supported by Schiavone, a leading reading educator.

> Most of the research on the teaching of reading has been done with children, and most reading teachers have been taught to teach reading to children or to teach based on principles of pedagogy (Schiavone:1978:3).

Wayne Otto, reading specialist at the University of Wisconsin-Madison campus, lists a number of component skills and implications that must be used in some sensible sequence. These are as follows:

Adult Characteristics	Implications for Teaching Reading to Adults
Compared to children, adults:	Therefore, to make use of adults' strengths as well as make allowance for their weaknesses, we must:
Have less acute senses of hearing and sight	Develop auditory and visual screening tests for adults; establish minimum levels required to respond to regular instruction; develop adapted instructional programs for adults with visual and/or auditory defects that cannot be completely corrected.
Are slower to learn	Establish guidelines for realistic pacing of instruction.
Are less flexible	Devise instructional programs that strike a balance between structure and self-direction.
Are more conscious; are more apprehensive; and feel more anxiety	Develop adequate assessment techniques to ensure correct initial placement and subsequent success; develop acceptable techniques for providing positive feedback.
Feel a greater need for education; have a higher motivation to achieve specific goals; have needs which are immediate and concrete	Determine interests and provide appropriate materials and learning experience; establish optimum motivational techniques for adults, taking care not to push motivation to the point of anxiety; develop techniques for teaching study skills and providing for application in useful situations.
Have had a wider range of experience	Develop checklists, etc., that will permit teachers to make optimum use of prior experiences; develop adult materials which capitalize on the experience base; establish guidelines to assist teachers in developing materials based on experiences.

(Otto:1970:25)

A number of these implications have been incorporated into the present reading program directly; others incorporated indirectly. The reading specialist had done this with the full knowledge that the reading skills and developmental stages for adults are similar to those of children. The teaching approach, however, must differ. As Burnett states, "The learnings which underlie the ability to extract meaning from the printed page are common learnings whether the potential reader is a young child or a fully matured adult (Burnett:1966:242)."

The initial Developmental/Remedial Reading Program had been developed and implemented using federal and state funds. This funding was for the purpose of developing a reading program and determining the feasibility and value of such a program for students at LTI. Funding for the current school year had been approved on the basis of present student interest and the acceptance of the short time factor as a limitation so that formal evaluation could not be completed in time for a decision not to continue the program. Factors such as nonrenewal of staff, consumable materials on hand, space allocations made, etc., were important considerations in this decision.

Future funding decisions cannot be made on the same bases. As the competition for budgetary dollars becomes more intense due to increases in costs and cost control, programs offered as services will be scrutinized much more intently to determine the extent of the impact on students' performance in their chosen occupational programs. "To be effective, the remedial courses must have an impact on the education and subsequent educational accomplishments of open admissions students (Schiavone:1978:4)." Because Lakeshore Technical Institute has this

policy, the evaluation of a reading improvement program by student GPA seems appropriate.

Estimates indicate that 20 percent of the 1,400 students are having difficulty in completing their chosen occupational program or are not able to complete it because of the deficiency in reading skills and could benefit from the Developmental/Remedial Reading Program. Participation of students in this program could result in tremendous savings of both human and economic resources because students would be able to complete their chosen occupational programs and complete those programs with a greater understanding.

DEFINITION OF TERMS

The following definitions of terms were used within the context of this study.

Cost Control - Cost control is a control set by the Wisconsin legislature that limits the increase in institutional instructional costs per student from one school year to the next. The institutional instructional cost is calculated by dividing the instructional budget (salaries, supplies, utilities, etc.) by the number of full-time equivalent students. The cost control limit for the time period of the study was 9.5 percent, above which a penalty of a reduction in state aids would be made.

Developmental/Remedial Reading Program (Reading Program) - The Developmental/Remedial Reading program was designed to provide instruction and activities to enable students, having reading skills deficiencies, to gain or increase the levels of the skills of comprehension, vocabulary, and decoding. Students eligible for the program must have

been identified by the counselor as having reading skills deficiencies and scored on the Stanford Diagnostic Test as follows:

	Within the Range of
Comprehension Total	16-73rd Percentile
Vocabulary Total	24-51st Percentile
Decoding Total	23-76th Percentile

The program was staffed with one reading specialist available between the hours of 8 a.m. and 3 p.m. during the school year to assist students in (1) determining deficiency levels, (2) prescribing a skill-building program for each student, and (3) presenting small-group and individual instruction. The program includes a variety of techniques, equipment, and materials for student use which are used by students enrolled in the program in both small-group and individual learning situations.

First Semester - The first semester at LTI is the first period of instruction of eighteen weeks' duration within a student's occupational program.

Fiscal Year - The fiscal year is the twelve-month period between one balancing of financial accounts and the next. This begins on July 1 of one year and ends on June 30 of the next year at LTI.

Full-time Student - A full-time student at LTI is defined as one enrolled in twelve or more credits during a semester.

Grade Point Average (GPA) - The grade point average for the purposes of this study was calculated by dividing the total grade points earned by the student during the first semester by the total credits attempted in this semester. This will be based on the following system of grade points:

A equals four grade points per credit

B equals three grade points per credit

C equals two grade points per credit

I equals zero grade points per credit; indicates courses were not completed satisfactorily; competencies of the course had not been met

The students' grades were collected at the twenty-first week, which allowed the student time to complete an Incomplete (I), as LTI policy allows a student two weeks to complete work necessary to change an I grade into an A, B, or C grade without retaking the course.

Open Door - The LTI open door policy (see Appendix A) enables any student who can benefit from instruction to enroll in any program. No prerequisite high school or other course competency or characteristic may be listed as a condition of admission unless an outside agency has such a requirement for licensure or certification. Any such prerequisite course or competency instruction must be available within the school.

Underprepared Students - Underprepared students are those students identified by counselors during the admissions interview as having reading skills deficiencies in the areas of comprehension, vocabulary, and decoding and has subsequent scores on the Stanford Diagnostic Test as follows:

Comprehension Total	Below 73rd Percentile
Vocabulary Total	Below 51st Percentile
Decoding Total	Below 76th Percentile

Vocational, Technical and Adult Education Districts (VTAE Districts) - The vocational, technical and adult education districts have been set up in accordance with legislation to provide entry-level occupational training/education below the baccalaureate level within the

state of Wisconsin. This statewide arrangement makes such training/education available to state residents. The governance of each district is accomplished through a local board of education with policy guidelines and assistance provided by state VTAE staff. Funding is available from local property taxes, state aids, student tuition, other grants, etc., that might be available.

LIMITATIONS OF THE STUDY

The purpose of the study was to compare students who had been identified by counselors as having reading skills deficiencies and who had a Comprehension Total within the range of 16-73rd percentile, Vocabulary Total within the range of 24-51st percentile, and a Decoding Total within the range of 23-76th percentile on the Stanford Diagnostic Reading Test. All students identified and used in the study were enrolled as full-time students.

Participation in the LTI Developmental/Remedial Reading Program was voluntary. This may have had an effect on the grade point average, the extent of which was not determined.

Students not participating in the reading program did so for a number of reasons. Examples of reasons included:

1. Job hours conflicting with the Developmental/Remedial Reading Program schedule.
2. Family responsibilities.
3. Schedule and/or location of classes.
4. Lack of feeling regarding need for reading improvement.

No attempt was made to determine the effect of these factors on the GPA of students within this group.

Students may have been influenced to participate or not participate in the Developmental/Remedial Reading Program by information, etc., provided by the counselor during the admissions interview. Because each counselor is assigned to designated programs, students in some programs could have been influenced more to participate or not participate than those in other programs because of the interview information provided them by the counselor. This factor was not dealt with within this study.

ASSUMPTIONS OF THE STUDY

The following assumptions were made:

1. There was a similar distribution of age in both groups.
2. There was a similar distribution of intelligence in both groups.
3. There was a similar distribution of enrollments in occupational programs within both groups.
4. There were similar levels of reading skills required to complete each of the occupational programs within the study.

PROCEDURE FOR COLLECTING THE DATA

The procedure used in this study included the following:

1. A review of the literature pertaining to the topic of reading programs was made. The literature was identified through an ERIC search, which identified both Research In Education Titles and Current Journals In Education Titles, and through University of Wisconsin-Madison sources.

2. The sample included those full-time students at LTI who had been identified by counselors, based on information obtained during an entrance interview, as having reading skills deficiencies who had completed the first semester of an occupational program. The names of these students were obtained from the LTI Developmental/Remedial Reading Program records.

3. A reading test was administered to the identified students individually and in small groups during the period of May 1 through September 1, 1980, by the LTI Vocational Assessment staff. The reading scores for each student in the study were obtained from the LTI Vocational Assessment office. This was done to more precisely determine the reading ability and deficiencies. "The diagnosis and identification of deficiencies are best achieved through using standardized tests and procedures (Bond, Tinker, and Wasson:1979:175)."

The reading test used was the Stanford Diagnostic Reading Test--Blue Level--Form A, developed by Harcourt, Brace, Jovanovich, Inc., New York, and had a copyright date of 1977. It was selected for several reasons as indicated by Bond, Tinker, and Wasson.

This battery has certain advantages:

A. It may be used effectively by teachers with pupils needing individual help or by a reading specialist.

B. Directions in the manual are clear and complete.

C. Suggestions for remedial instruction are included in the manual.

D. Because it is a group test, it is economical in terms of time.

E. It emphasizes silent reading abilities.

F. It is effective in reading disability cases from grade three through the college level (Bond, Tinker, and Wasson:1979:175).

4. The students selected for this study had scores within the lower and upper limits for all three subtests as follows:

Comprehension Total	16-73rd Percentile
Vocabulary Total	24-51st Percentile
Decoding Total	23-76th Percentile

5. The students identified by counselors and having scores within the specified limits were separated into two groups. Students in the first group had voluntarily participated in and completed the reading program. This group consisted of twenty students. The second group consisted of students who had elected not to participate in the reading program. This group consisted of twenty-four students.

6. The first-semester grade point average (GPA) for each student within each group was obtained from the registrar's office (see Appendices D and E for student grade point averages).

PROCEDURES FOR TREATMENT OF DATA

The mean and standard deviation of the GPAs of the group of full-time students participating in the Developmental/Remedial Reading Program was calculated. There were twenty students in this group. The mean and standard deviation of the GPAs of the group of full-time students not participating in the reading program was also calculated. There were twenty-four students in this group. The difference between the means of the groups' GPAs was then calculated. The means and standard deviations of the GPAs were used as data for the calculation of a t-value. The calculated t-value was then compared to the critical

t-value to determine if the difference between the means of the GPAs of the two groups of students was significant.

HYPOTHESES

In order to complete this study, the following hypotheses were developed:

Null Hypothesis

There is no significant difference between the mean of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who participated in the LTI Developmental/Remedial Reading Program and the mean of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who did not participate in the LTI Developmental/Remedial Reading Program. H_0: $\overline{GPA}_1 = \overline{GPA}_2$

Alternate Hypothesis

There is a significant difference between the mean of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who participated in the LTI Developmental/Remedial Reading Program and the mean of the GPAs of the group of full-time students, identified as having reading skills deficiencies, who did not participate in the LTI Developmental/Remedial Reading Program. H_A: $\overline{GPA}_1 = \overline{GPA}_2$

Statistical Test

The independent t-test was used to test the null hypothesis. The decision to reject or fail to reject the null hypothesis was made at the .05 level of significance for a two-tailed test.

RESULTS

Forty-four students were included in the study. Twenty were students, identified as having reading skills deficiencies, who participated in the Developmental/Remedial Reading Program. Twenty-four were students, identified as having reading skills deficiencies, who did not participate in the reading program.

The range of GPAs for both groups of students was identical with the extremes represented from 0.00 to 4.00 (see Table 1). The distribution was also similar for both groups. The number at or above 3.00 for those students participating in the reading program and for those students not participating in the reading program were 9 and 11 respectively. The numbers of students having a GPA of 0.00 were 6 and 7 respectively for both groups according to data presented in Table 1.

Table 1

GPA DISTRIBUTION FOR LTI STUDENTS IDENTIFIED AS HAVING READING SKILLS DEFICIENCIES

	Students Participating in Reading Program (N_1=20)		Students Not Participating In Reading Program (N_2=24)	
GPA	Number	Percent	Number	Percent
4.00	2	10	4	17
3.50 - 3.99	2	10	3	13
3.00 - 3.49	5	25	4	17
2.50 - 2.99	3	15	3	13
2.00 - 2.49	2	10	3	13
0.00	6	30	7	29
Total	10	100	24	102*

*Note: The total is greater than 100 percent because of rounding.

The calculated mean and standard deviation for the GPAs of the students identified as having reading skills deficiencies who participated in the LTI Developmental/Remedial Reading Program were $\bar{X}_1 = 2.18$ and $s_1 = 1.58$ respectively. The calculated mean and standard deviation for the GPAs of the students identified as having reading skills deficiencies who did not participate in the LTI Developmental/Remedial Reading Program were $\bar{X}_2 = 2.28$ and $s_2 = 1.58$ respectively as found in Table 2.

Table 2

GPA SUMMARY OF LTI STUDENTS IDENTIFIED AS HAVING READING DEFICIENCIES

Group	Grade Point Averages (GPA)			
	Number (N)	Range (R)	Mean (X)	Standard Deviation (S)
Students Participating in Reading Program	20	0 - 4.00	2.18	1.58
Students Not Participating in Reading Program	24	0 - 4.00	2.28	1.58

The t-values were calculated in accordance with the information in Table 3. Both the calculated t-value and the critical t-value are included.

Table 3

DETERMINATION OF t-VALUES

Number of students in group participating in reading program	$N_1 = 20$
Mean of GPAs of students in group participating in the reading program	$\overline{X}_1 = 2.18$
Standard deviation of students in group participating in the reading program	$s_1 = 1.58$
Number of students in group not participating in the reading program	$N_2 = 24$
Mean of GPAs of students in group not participating in the reading program	$\overline{X}_2 = 2.28$
Standard deviation of students in group not participating in the reading program	$s_2 = 1.58$
Calculated t-value	$\text{calculated t-value} = \dfrac{\overline{X}_1 - \overline{X}_2}{\sqrt{\dfrac{s_1^2}{N_1} + \dfrac{s_2^2}{N_2}}} = 0.21$
Degrees of freedom	$df = N_1 + N_2 - 2 = 42$
Critical t-value for .05 significance level with two-tailed test and 42 degrees of freedom	critical t-value = 2.02

The critical t-value for the study was 2.02 (.05 level, two-tailed test, with 42 degrees of freedom). The calculated t-value was 0.21. Since the calculated t-value for the study did not exceed the critical t-value, the null hypothesis cannot be rejected. There was no

signficant difference; the means of the GPAs for both groups did not differ significantly from each other.

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

An analysis of the data indicated that there was no significant difference between the mean of the GPAs of those students identified as having reading skills deficiencies who participated in the LTI Developmental/Remedial Reading Program and the mean of GPAs of those who did not participate in the reading program. The distribution of GPAs for both groups was almost identical with the standard deviation being 1.58 for both.

Approximately 70 percent (see Table 1) of the students in each group completed the first-semester courses with a 2.00 or better GPA. There seemed to be no difference in the proportion of each group receiving a GPA of 2.00 or greater. The other 30 percent did not complete a single course. Therefore, their GPA was 0.00.

The results of this are indicative of results of other studies in which achievement was used as the evaluation criteria. Other researchers have found that reading programs have resulted in significant increases in achievement, as measured by GPA, in approximately 50 percent of the studies; and even when improvement occurred, concern was expressed that grade gains were small.

> Later summaries by Wright, Bednar, Weinberg, and Tillman have indicated that some programs have not yielded any measurable overall grade-point-average (GPA) advantage for students participating in programs described (Fairbanks:1974:105).

> Viewing the increased numbers of "open door" admissions of community colleges in the past twenty-five years, Evans and Dubois (1972) were concerned over the implied promise that the remedial courses they offered would prepare the low achievers for success. Little research exists to substantiate existing programs (Nacke: 1974:26).

In a review of seventy-nine studies, Fairbanks found that:

> Sixty of the seventy-nine studies used a comparison group and made some mention of statistical procedures utilized in determining results and referred to the level of significance of results. Thirty of these studies indicated that the programs had been "successful" in that improvement or superiority in overall GPAs favored the reading improvement group, significant at the .05 level (Fairbanks:1974:106).

In the review of the literature, there seems to be limited research on achievement resulting from reading improvement programs for adults. What Wright and others suggested in the early 1970s evidently has not been accepted by reading researchers as literature sources still contain numerous studies dealing with accompanying increases in grade level with methods of teaching and psychology of the learning to read but few involving achievement.

> Wright specifically stressed the need for further research into a number of factors that could influence program results, including various characteristics of the students involved, and the content and operation of the programs themselves (Fairbanks:1974:105).

> Tillman (1972-73) reviewed 31 four-year college reading programs, which emphasized reading improvement and used GPA as a criterion. Although twenty-three of the thirty-one found statistically significant results, grade gains tended to be small. It was recommended that grades be viewed as only one factor in evaluating reading programs (Nacke:1974:25).

Several attempts have been made to determine components and criteria of successful reading improvement programs for adults. Some components and criteria could be used in future studies and evaluation of local reading programs to broaden the evaluation base to determine successful programs.

One of these was the dropout rate. Reid stated, "Although their GPAs were not higher than the control group, they remained in school at nearly the same rate as the other first-year students (Reid:1974:34)."

Other studies have included other factors. Fairbanks (1974:109) reviewed sixty studies in which program results were "successful," "unsuccessful," or "having a successful tendency." Using the chi square statistic, she concluded that two content factors and three operational factors were significant. She identified them as: content factors--main idea and differentiating fact and opinion; operational factors--students informed of strengths and weaknesses; student participation in evaluation; and programs being voluntary. She also found that a significantly greater portion of successful programs had a total instructional time of more than 40 hours.

Wright (Fairbanks:1974:105) stressed the use of "various characteristics of students involved" to evaluate the effectiveness of reading programs. To determine if the LTI Reading Program was more beneficial to some subgroups of students than others, both participants and nonparticipants were placed into subgroups, (1) Lower One-third, (2) Middle One-third, and (3) Upper One-third, using their subscore percentiles on the Stanford Diagnostic Test as the basis. The three subscore percentiles used were (1) Decoding, (2) Vocabulary, and (3) Comprehension because these were areas used as criteria for selection of students and content for the Reading Program. The subgroup placement and GPAs are included in Appendices D and E.

Table 4

Decoding Subscore Percentiles and Student GPAs

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Upper One-third (59-76)	1	76	2.75	15	75	0.00
	3	76	0.00	19	75	0.00
	2	75	3.33	24	75	3.83
	8	75	3.39	22	74	3.19
	16	75	4.00	17	72	4.00
	9	74	2.43	13	70	3.40
	12	74	2.67	14	70	4.00
	20	74	3.00	8	65	0.00
	11	72	3.56	9	60	4.00
	14	67	0.00			
	19	67	0.00			
	13	65	4.00			
	15	65	2.00			
	18	65	2.74			
		N=14 X=2.42			N=9 X=2.49	
	6	51	0.00	4	58	3.56
	10	44	3.50	21	58	3.25
	4	43	0.00	18	51	0.00
				16	49	2.25

Table 4 (continued)

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Middle One-third (41-58)				23	49	2.67
				2	47	0.00
				5	47	4.00
				11	47	2.25
				1	42	0.00
				3	42	3.00
				7	42	3.69
		N=3 X=3.50			N=11 X=2.24	
Lower One-third (23-40)	5	40	3.07	10	33	2.17
	7	37	0.00	20	33	2.79
	11	36	3.18	12	30	0.00
				6	23	2.17
		N=3 X=3.13			N=4 X=1.78	

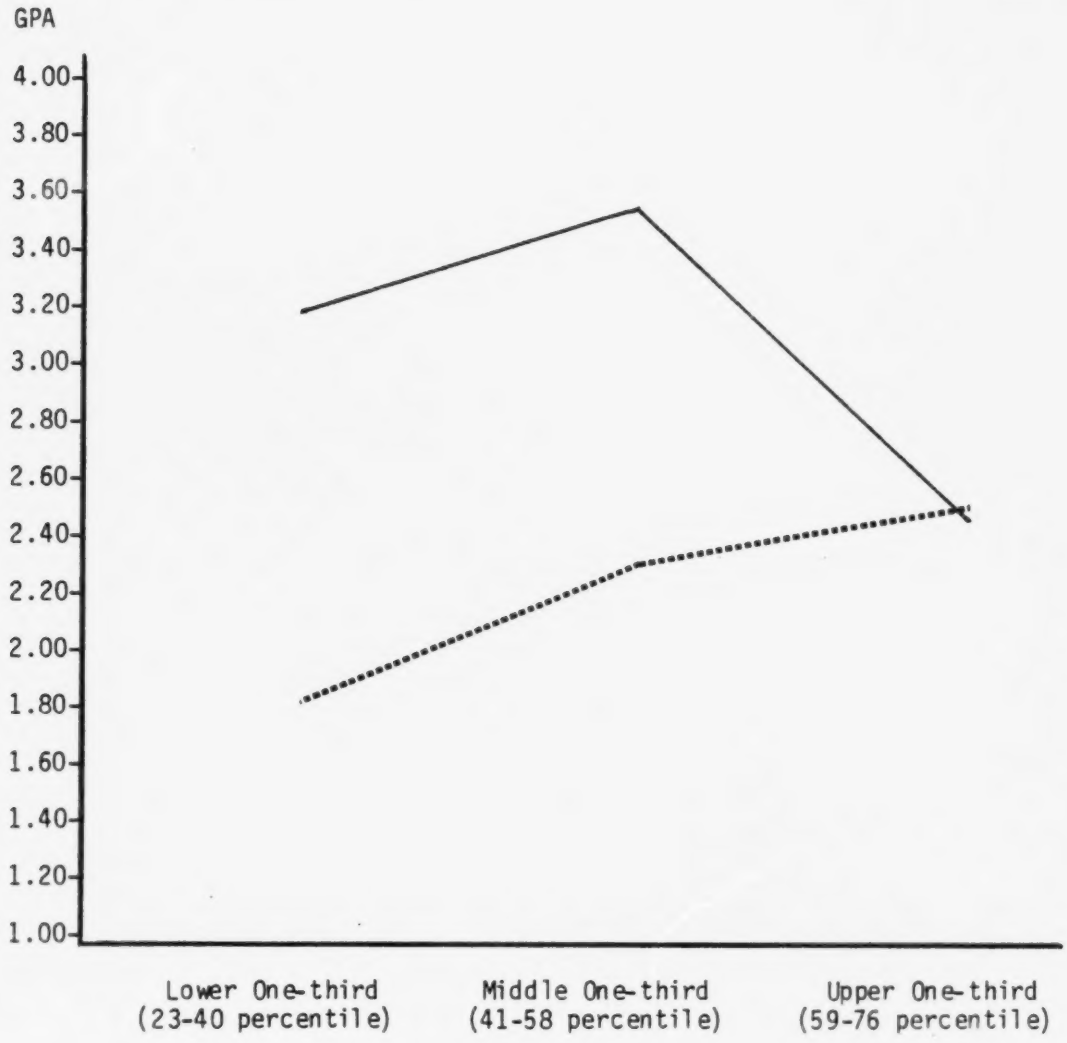

Figure 1

Relationship Between Decoding Subscore Percentile and Mean GPA for Three Subgroups of Reading Program Participants and Nonparticipants

Table 4 lists the Decoding Subscore Percentiles and GPAs of reading participants and nonparticipants within each of the three subgroups: Upper One-third, Middle One-third, and Lower One-third. Figure 1 shows the relationship between the decoding subscore percentiles and GPAs of students. The mean GPA (3.13) of the reading participants was considerably higher than the mean GPA (1.78) of the nonparticipants. The mean GPA (3.50) of participants was considerably larger than the mean GPA (2.24) of nonparticipants for the subgroup Middle One-third. The mean GPAs of participants and nonparticipants within the subgroup Upper One-third were very similar. This would indicate that participation was beneficial for participants within the lower one-third and middle one-third subgroups. The small number of students within the subgroup's lower one-third and middle one-third, however, caused a concern that the difference might be biased because of the small numbers within the subgroups.

Table 5 lists the Vocabulary Subscore Percentiles and GPAs. Figure 2 shows the relationship between the Vocabulary Subscore Percentiles and GPAs of students. The GPA tends to be positively and directly related to the initial vocabulary subscore percentile for both groups. There does not seem to be any effect that could be attributed to participation in the Reading Program.

Table 5

Vocabulary Percentiles and Student GPAs

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Upper One-third (42-51)	16	51	4.00	15	49	0.00
	2	49	3.33	17	49	4.00
	9	48	2.43	14	48	4.00
	15	48	2.00	24	48	3.83
	20	47	3.00	16	44	2.25
	3	45	0.00	20	44	2.79
	8	43	3.39	9	43	4.00
	10	43	3.50	13	43	3.40
	12	42	2.67	5	42	4.00
	19	42	0.00	18	42	0.00
		N=10 X=2.43			N=10 X=2.83	
Middle One-third (33-41)	13	40	4.00	23	39	2.67
	11	39	3.56	1	35	0.00
	1	37	2.75	11	35	2.25
	5	36	3.07	3	33	3.00
	14	34	0.00	4	33	3.56
	4	34	0.00	12	33	0.00
		N=6 X=2.23			N=6 X=1.91	

Table 5 (continued)

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Lower One-third (24-32)	7	31	0.00	19	31	0.00
	6	31	0.00	6	31	2.67
	18	29	2.74	7	31	3.69
	17	24	3.18	22	30	3.19
				2	29	0.00
				10	28	2.17
				8	27	0.00
				21	27	3.25
		N=4 X=1.48			N=8 X=1.87	

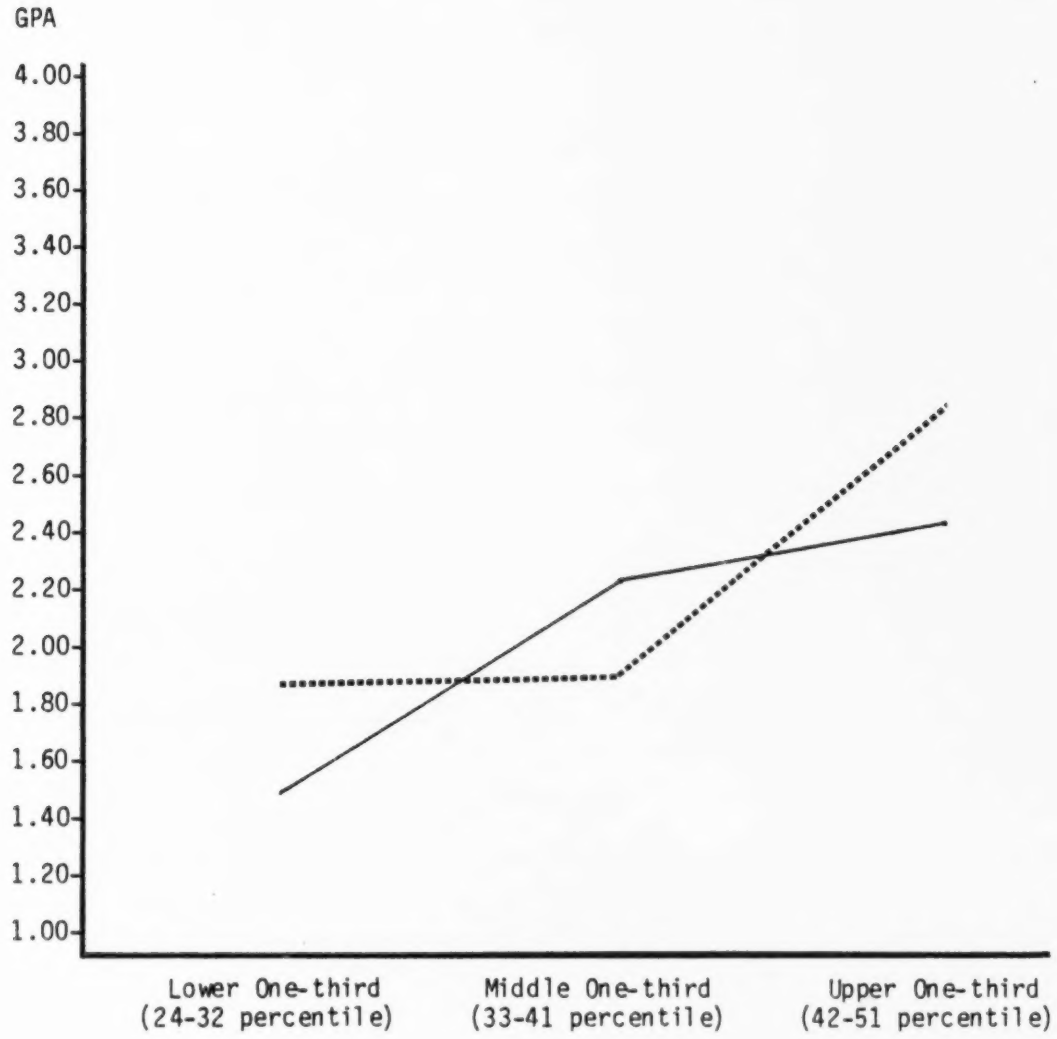

Figure 2

Relationship Between Vocabulary Subscore Percentile and Mean GPA for Three Subgroups of Reading Program Participants and Nonparticipants

Table 6 lists the Comprehension Subscore Percentiles and GPAs. Figure 3 shows the relationship between the GPA and the Comprehension Subscore Percentiles. The mean GPAs for the subgroup lower one-third for both reading participants and nonparticipants were similar. The mean GPA difference increased for the subgroup middle one-third with the mean GPA (3.35) of the nonparticipants considerably larger than the mean GPA (2.27) of the reading participants. The mean GPA (2.44) of the reading participants is considerably larger than the mean GPA (1.01) for the nonparticipants for the subgroup upper one-third. This proportionate number of GPA equaling 0.00 for the nonparticipants within this subgroup may be cause for suspicion regarding this comparison.

Table 6

Comprehension Percentiles and Student GPAs

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Upper One-third (54-73)	8	73	3.39	1	67	0.00
	3	71	0.00	18	67	0.00
	9	71	2.43	15	64	0.00
	15	67	2.00	16	64	2.25
	2	61	3.33	20	55	2.79
	10	55	3.50			
		N=6 X=2.44			N=5 X=1.01	
Middle One-third (35-53)	16	53	4.00	4	53	3.56
	4	51	0.00	7	53	3.69
	20	48	3.00	24	53	3.83
	11	45	3.56	13	53	3.40
	12	45	2.67	14	53	4.00
	19	45	0.00	9	48	4.00
	13	43	4.00	19	45	0.00
	6	40	0.00	17	43	4.00
	18	40	2.74	5	40	4.00
	1	40	2.75	3	38	3.00
		N=10 X=2.27			N=10 X=3.35	

Table 6 (continued)

Subgroup	Reading Program Participants (N=20)			Nonparticipants (N=24)		
	Student No.	Percentile	GPA	Student No.	Percentile	GPA
Lower One-third (16-34)	5	33	3.07	22	33	3.17
	14	32	0.00	23	33	2.67
	17	25	3.17	8	30	0.00
	7	16	0.00	11	30	2.25
				12	23	0.00
				21	20	3.25
				2	18	0.00
				10	17	2.17
				6	17	2.67
		N=4 X=1.56			N=9 X=1.80	

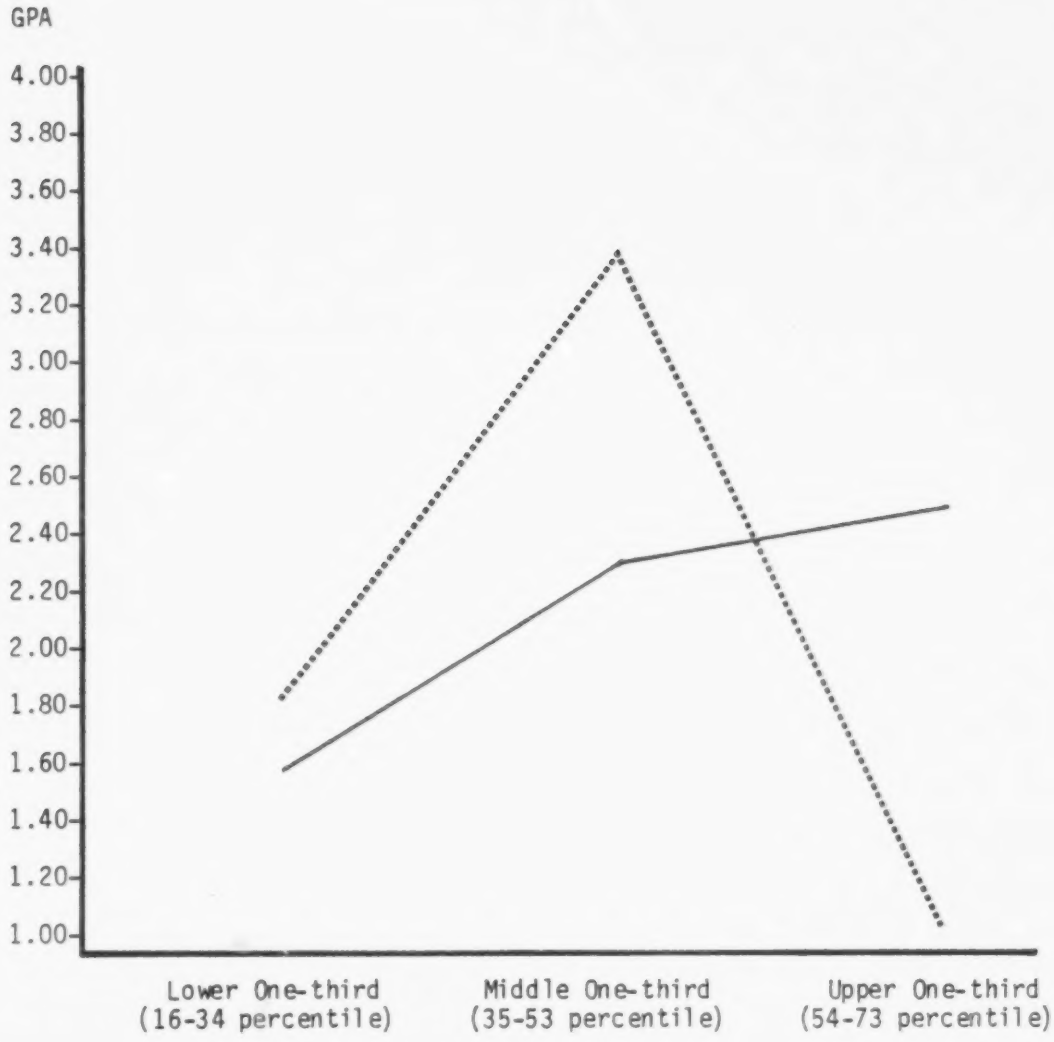

Figure 3

Relationship Between Comprehension Subscore Percentile and Mean GPA for Three Subgroups of Reading Program Participants and Nonparticipants

There does not appear to be any benefit resulting from participation in the Reading Program on the GPA for any of the subgroups: decoding, vocabulary, or comprehension. In some subgroups there appeared to be an effect of either participation or nonparticipation. However, further examination of the numbers of the students within these subgroups revealed either very small numbers or disproportionate numbers of GPAs of 0.00, which would make it very difficult to support the relationship with conviction.

A factor for obtaining a no significant difference in the means of the GPAs for the two groups may have been the motivation of the students to succeed. The students chose an occupation to pursue and were motivated to complete the courses. The study did not address the motivation and amount of effort required to attain the level of achievement.

Another factor for obtaining a no significant difference in the means of the GPAs may have been the effort required of the reading program participants. The three hours per week utilized in the program reduced the amount of time available for study in occupational program courses. Therefore, reading program participants had approximately fifty hours less time available for study in courses than nonparticipants of the reading program.

It may also have been that the skills developed were not developed early enough in the semester to enable the student to use them effectively throughout the semester and, therefore, the benefit was not identified.

It is also possible that most of the students identified as having reading skills deficiencies, who were found to be within the ranges specified for admission into the program, had reading skills at

levels sufficient for completing entry-level courses. The ranges specified for admission were not determined by evaluation of the reading skills levels required by the occupational programs.

Smith indicates that four stages of reading exist; the introductory level, the elementary level, the intermediate level, and the developmental level. The two levels, elementary--four to six readability, and intermediate--seven to eight readability, would describe the students included in the study.

The students within the elementary stage, having four to six readability levels, "have skills which enable them, on their own, to unlock new words (Smith:1978:17)." The students within the intermediate stage have seven to eight readability levels. Smith goes on to indicate the difficulties encountered by such an adult:

> Using reading as a learning tool is hard for him. He tends to be a somewhat slow reader, and he has difficulty coping with the rate at which specialized vocabulary and strange concepts are introduced. With adequate help, however, he can "hang in there." He is more likely to be work oriented and optimistic about his chances for success (Smith:1975:18).

Smith's stages and characteristics assist in the explanation of the completion and high GPAs of students involved in this study. The students in this study were in either the elementary or intermediate stage. Smith indicates that reading is slow for these students in the nonparticipation group, but they are able to "hang in there," thereby completing their educational program. Because time to learn specialized vocabulary and strange concepts was not considered, there seemed to be no significant difference.

Implications

The LTI Developmental/Remedial Reading Program was initiated on the basis of the assumption that reading skills deficiencies were major courses of student noncompletion of chosen occupational programs. The criteria for acceptance into the reading program was established by the reading specialist on the basis of previous experience and judgments regarding the levels of reading skills that could be increased sufficiently within a one-semester period to enable the student to complete the chosen occupational program.

Because the reading program was in its initial year, students were not required to enroll in the program. They were encouraged to enroll in the program if they met the established criteria. The results of this study support this voluntary approach.

Recommendations

As a result of this study, the following recommendations are made:

1. Students should continue to be enrolled in the reading program on a voluntary basis.

2. The LTI Developmental/Remedial Reading Program instructional procedures and materials should be evaluated to determine the extent to which they conform to reading instruction principles and learning theories relating to adults with modifications made accordingly.

3. The critical reading skills levels should be systematically determined for each occupational program based on materials used in instruction, materials used on the job, and levels possessed by graduates.

4. Factors, other than GPA, should be identified and used to evaluate the reading improvement program.

5. Additional student characteristics should be identified and used in determining the characteristics of students that would benefit most from such a reading program.

6. A longitudinal study be conducted to determine the long-range effect of participation in the reading program.

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NOTE: Chapter 38 is from the 1975 Wisconsin Statutes as affected by chapters 29, 273, 300 and 418, laws of 1977. This copy is subject to change prior to publication in the 1977 statutes.

CHAPTER 38

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

38.001 Mission.
38.01 Definitions.
38.02 Establishment.
38.04 Board of vocational, technical and adult education; powers and duties.
38.06 District boundaries.
38.08 Composition and organization of district board.
38.10 Appointment of district board members.
38.12 District board duties.
38.14 District board powers.
38.16 District tax levy.
38.18 Contracts and bidding.
38.20 Adjustment of assets and liabilities.
38.22 Admission requirements.
38.24 Fees and tuition.
38.28 State aid.
38.29 District budget limitations.
38.30 Special aid for veterans.
38.51 Educational approval board.

38.001 Mission. The board shall be responsible for the initiation, development, maintenance and supervision of programs with specific occupational orientations below the baccalaureate level, including terminal associate degrees, training of apprentices and adult education below the professional level.

History: 1971 c. 100, 125, 211.

38.01 Definitions. In this chapter:

(1) "Board" means the board of vocational, technical and adult education.

(2) "District" means a vocational, technical and adult education district established under this chapter.

(3) "District board" means the district board in charge of the vocational, technical and adult education schools of a district.

(4) "School district" means a school district operating high school grades.

(5) "School board" means the school board in charge of the public schools of a school district.

(6) "School year" means the time commencing with July 1 and ending with the next succeeding June 30.

(7) "Associate degree program" means a 2-year, post-high school program in an area designated and approved by the board for which the course requirements are established by the board.

(8) "Collegiate transfer program" means a state-wide, full-time program, designated and approved by the board, in which the credits earned may be transferable to a 4-year institution of higher education.

(9) "Vocational diploma program" means a one- or 2-year, full-time program in an area designated and approved by the board for which the course requirements are established by the board.

(10) "Vocational-adult program" means a part-time vocationally oriented program established by a district board which is approved by the state director under procedures established by the board.

History: 1971 c. 154, 211; 1975 c. 39.

38.02 Establishment. There is established under this chapter a system of vocational, technical and adult education to foster and maintain instruction in courses approved by the board in part-time and full-time day or evening classes. Every person at least the age specified in s. 118.15 (1) (b) who can profit thereby is eligible to receive instruction under this chapter and rules established by the board.

History: 1971 c. 154.

38.04 Board of vocational, technical and adult education; powers and duties. (1) GENERAL. The board shall determine the organization, plans, scope and development of vocational, technical and adult education. For state aid, credit determination and other purposes, the board shall establish criteria for the establishment of district schools and shall classify and name the district schools.

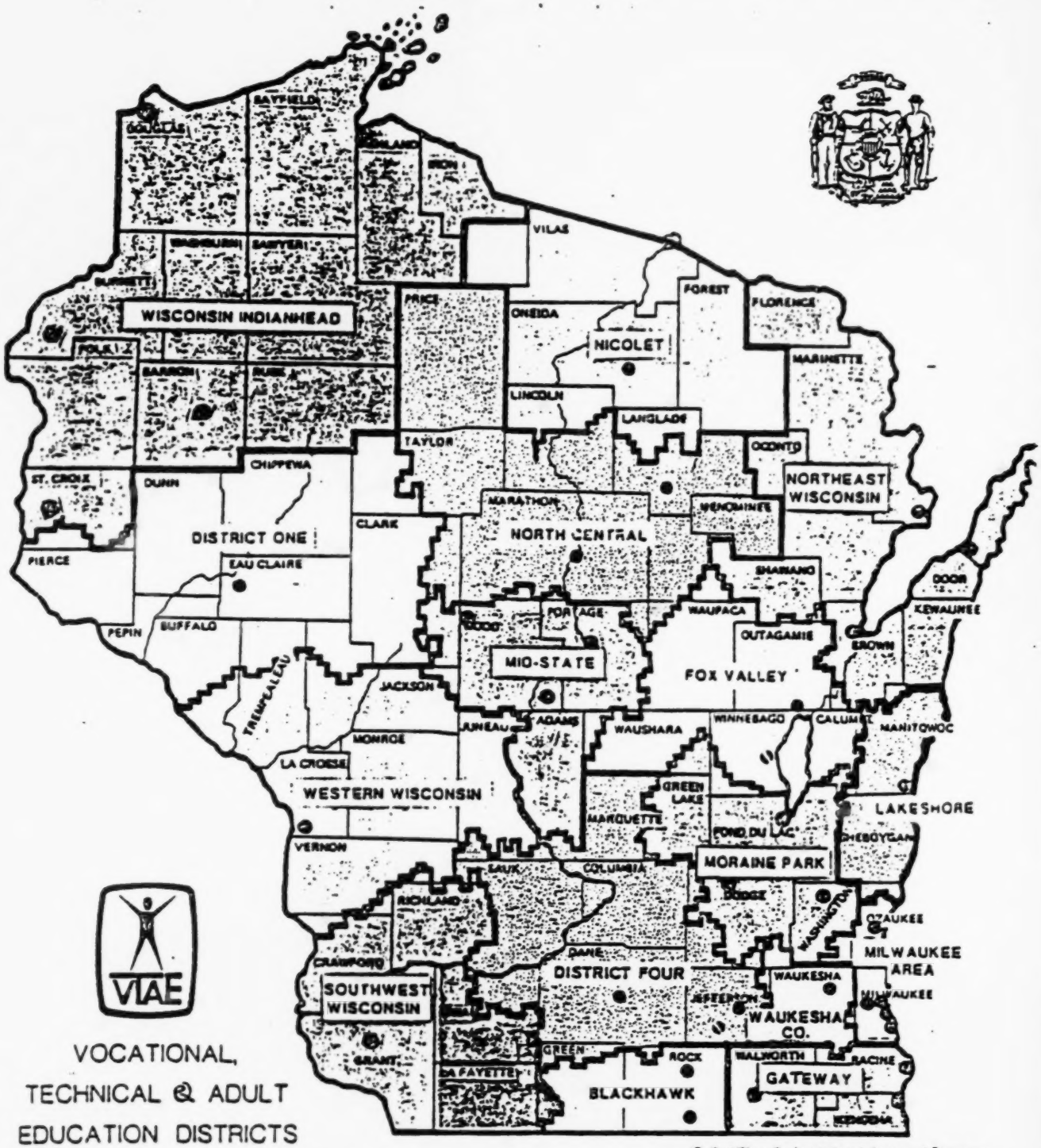
(2) DIRECTOR. The board shall appoint a director, outside the classified service, to serve at its pleasure.

(3) STAFF. The board shall appoint such staff as is necessary under the classified service. Three positions in addition to the director shall be filled outside the classified service.

(4) TEACHER AND COURSE REQUIREMENTS. (a) The qualifications of educational personnel and the courses of study for each program offered in district schools shall be approved by the

State of Wisconsin

BOARD OF VOCATIONAL, TECHNICAL & ADULT EDUCATION



technician education.

2. Some faculty members and counselors seem to be more interested in "self realization" experiences for students than in bona fide occupational preparation for gainful employment. The visiting team is not offering a value judgment here, but is merely pointing out an apparent discrepancy between the concept of mission held by some faculty and counselors, and the stated mission of the institution.
3. There is no well-planned, structured, organized program of remedial/developmental education; and since large numbers of entering students are totally unprepared to cope with the level of instruction required in some courses and programs, the mission of the institution is thereby jeopardized.

Institutional Resources

In this section the team's observations and evaluations of the resources necessary to carry out the institutional mission will be presented. Among these resources are: the faculty; the library and instructional services; financial resources; and the buildings and equipment which comprise the campus.

Faculty Resources

The faculty of Lakeshore Technical Institute, numbering approximately 80 full-time, and 40-45 part-time and teaching

Appendix D

Reading Subscore Percentiles and GPAs of
Reading Program Participants

	Percentile			
Student Number	Decoding	Vocabulary	Comprehension	GPA*
1	76	37	38	2.75
2	75	49	61	3.33
3	76	45	71	0.00
4	43	34	51	0.00
5	40	36	33	3.07
6	51	31	40	0.00
7	37	31	16	0.00
8	75	43	73	3.39
9	74	48	71	2.43
10	44	43	55	3.50
11	72	39	45	3.56
12	74	42	45	2.67
13	65	40	43	4.00
14	67	34	32	0.00
15	65	48	67	2.00
16	75	51	53	4.00
17	36	24	25	3.18
18	65	29	40	2.74
19	67	42	45	0.00
20	74	47	48	3.00

*Note: GPA based on A = 4.0; B = 3.0; C = 2.0; I = 0.0

N = 20

$\bar{X}$ = 2.18

s = 1.58

R - 0.00 ---> 4.00

Appendix E

Reading Subscore Percentiles and GPAs
of Nonparticipants

	Percentile			
Student Number	Decoding	Vocabulary	Comprehension	GPA*
1	42	35	67	0.00
2	47	29	18	0.00
3	42	33	38	3.00
4	58	33	53	3.56
5	47	42	40	4.00
6	23	31	17	2.17
7	42	31	53	3.69
8	65	27	30	0.00
9	60	43	48	4.00
10	33	28	17	2.17
11	47	35	30	2.25
12	30	33	23	0.00
13	70	43	53	3.40
14	70	48	53	4.00
15	75	49	64	0.00
16	49	44	64	2.25
17	72	49	43	4.00
18	51	42	67	0.00
19	75	31	45	0.00
20	33	44	55	2.79
21	58	27	20	3.56
22	74	30	33	3.19
23	49	39	33	2.67
24	75	48	53	3.83

*Note: GPA based on A = 4.0; B = 3.0; C = 2.0; I = 0.0

N = 20

$\bar{X}$ = 2.28

s = 1.58

R - 0.00 ---> 4.00

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